

Interview with Thomas Klein, Ceo and Founder, Cytolon

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You have a wide professional experience that goes from financial adviser to biotechnology entrepreneur, passing through software business and politics. How will all of those different experiences enable you to achieve your mission of making Cytolon AG the world's first source of cord blood?

Cytolon was the result of a decade of experience in the biotech business, united with my most recent experience in the software business with ArcWay AG. This mixed experience explains why Cytolon serves as an interface between the biotech and software worlds. Its backbone is an internet portal through which the match and trade of stem cell products will be possible in the near future. The elaboration of this new service came from my gained knowledge of the complex value chain behind the expansion of products in the pharmaceutical industry. The drugs of the future will be produced on a stratified or personalized way, creating a need not yet met for a wide variety of services that are not available yet in the market. The key word in this new world will be "match". Whatever you do, if you have a stratified or personalized product, you will need to match it with the specific needs and characteristics of the patient. In a mass market, companies will need a necessary platform. Therefore, Cytolon is developing a cord-match portal to match stem cell products in a timely manner for patients that need them urgently, such as leukemia patients, for instance. The idea of this portal started two years ago. Since then, I had hundreds of discussions with stakeholders, from users to doctors, hospitals, and the pharmaceutical industry, to identify which were their most urgent needs. Today, cord blood units transplanted into patients are done in an individual way. The same is true for other conditions that could benefit from regenerative

medicinal stem cell products, such as stroke or myocardium infection, or which there is more than 3.5 million cases in Europe and in the USA every year. If you want to enter these stem cell markets, you need to have an answer in regards to how to handle the processes. The greatest need in the field of regenerative medicine and stem cell products is the existence of a portal where physicians can order products for their patients, which fits the patient's needs on a genetic basis. Siemens understood Cytolon's new approach to this promising field and is now partnering with us, which is a great step for us, because naturally, such a big partner will put Cytolon in contact with thousands of doctors and hospitals worldwide through Siemens healthcare and IT solutions. That's why we have a mutual interest to collaborate.

This is a very specific niche and Cytolon is no doubt its front-runner. How promising is this market in Germany and abroad?

There is an enormous potential worldwide. The existing market today is the market for the restitution of haematopoiesis or leukemia patients. The recovery of the patients' blood building is still done by bone marrow transplantation, which is a very time consuming process, because you have to re-find the donor who volunteered, sometimes ten to fifteen years ago, and see if he or she is still healthy. Thanks to the evolution of medicine, the technology to transfuse cord blood units is available. In the USA and Europe, the market is roughly 100,000 cases every year, which is not very big market, but an important number nonetheless. But if you are able to match and deliver cord blood units in a timely manner, which thanks to Cytolon, can possibly be reduced to a matter of days, you can enter new markets of regenerative medicine with millions of cases every year, including those involving myocardial infarction or stroke. In those areas, the current setting of emergence is already very good. Whatever is done to the patient in the following three to four hours after a myocardial or stroke event is well done, but to enter into the regeneration of the heart, there are big gaps. These gaps can be filled with stem cells in order to begin the regenerative abilities of the muscle. This new promising market holds Cytolon's assurance of success.

What is your strategy to better penetrate those markets and establish Cytolon's name in the field?

Our strategy is to move along with the clinical studies. As of today, there are 109 clinical studies, all only in the USA with cord blood or stem cells. Worldwide, this number is about 200, with forty in Europe and sixty in Asia. As an example of the potential this sector holds, in 1999, there were 91 clinical studies with antibodies. Today, there are 28 antibody products in a billion dollar market that is made through the authorities' approval. Therefore, we can expect at least the same success in cord blood research, and with every study in stem cells, you need a portal between the researcher

and the patient. Cytolon is here to offer the needed solutions. The strategy to get closer to our prospective partners is to provide our services to those studies already in the clinical phase. In Berlin, we talked with Prof. Kang from the Seoul National University and the Adult Stem Cell research center in Berlin, and next week we will be in Leipzig to discuss partnerships involving myocardium stem cell research between Berlin and Seoul. In Leipzig, there is the Fraunhofer Institute, IZI, which is starting a clinical study next year on the basis of stem cells for stroke victims, and we will close a similar partnership between Germany and in Seoul with Cytolon as their portal bridge. Cytolon provides these innovators with services, so this facilitates and considerably speeds up their clinical studies. I would even say that without Cytolon's collaboration, these studies wouldn't even be possible. When these studies result in products, Cytolon will already be there offering the right link between doctors, personalized drugs, treatments, and patients.

What are your expectations in regards to future partnerships and how would you portray Cytolon as the right partner to choose?

Cytolon is starting to develop the platform for the co-market restitution of haematopoiesis, and we will broaden its scope to other stem cell products and services over the whole field of regenerative medicine. Currently, Cytolon has Siemens as its first partner in developing the platform and has a co-marketing and co-sales presence worldwide. This is something very fortunate for Cytolon, since Siemens is not a competitor, but indeed a partner from the healthcare and IT business that has a turnover of more than 1.5 billion US dollars every year. After Cytolon establishes its platform, co-marketing, and co-sales network worldwide, thanks to the opportunity Siemens provides to enter many hospitals, then we will approach the pharmaceutical industry and show them that they can sell whatever they want in the future through our platform. Cytolon will even provide them with a license for this platform in the white-label model, so that the pharmaceutical industry can take advantage of our platform.

What are your main ambitions for Cytolon in the next five to ten years?

To become the global market leader for matching of personalised products. In the next thirty months, Cytolon wants to have accreditations in around 100 hospitals, that is, one third of the transplantation hospitals worldwide, and in forty cord blood banks, which is around two thirds of the allogeneic blood cord banks in the world right now. Two and a half years after that, we want to partner with sixty cord banks, which represents more or less all of the main cord blood banks worldwide accredited in our platform, and around 300 transplant centers within five years, or half the number of transplant centers.

You have a history of being a very successful start-upper with Noxxon, ArcWay, and now with Cytolon. What management skills would you highlight as the most important in order to be successful in the biotechnology and software business?

First of all, you have to be lucky, just as King Frederick from Prussia wisely justified his success in building up an Empire. With Noxxon, we were able to enter the market with a brand new idea of a technological platform with a mirror-image oligonucleotide, RNA technologies which came about in the 1980s and 1990s. Noxxon was one of the first companies that were founded in this niche, but we had to fight to make the company survive in a very competitive market. In 2006, Noxxon established its first big deal with Pfizer, selling its first product and part of the technology to Pfizer. They invested heavily into Noxxon and shortly after this, there were two big deals with Eli Lilly and Roche. This is part of the secret of small biotech companies. Don't go your way alone, but go together with the pharmaceutical industry. This is a win-win relationship where biotech companies boost pharmaceutical companies with new products and technologies, and the pharmaceutical industry provides the market, franchises, marketing organization, and so on. This is the reason why Cytolon is a member of the German Association of Research-Based Pharmaceutical Companies (VFA), of which I was already a member, since my stay at Noxxon. Even at a very early stage of the company, the VFA understood that Cytolon is part of the future of the pharmaceutical industry and that in the field of personalized medicine, the industry could not do it alone. As mentioned before, firstly, Cytolon has Siemens as a partner, and that will help it to establish the platform from which we will be able to collaborate and partner with the pharmaceutical industry.

As the head and founder of Cytolon, what is your final message to your partners of the pharmaceutical industry in Germany and worldwide?

Cytolon is building the right expertise and tools that will soon enable the pharmaceutical industry to advance much faster in the revolutionary and promising field of blood cord units, stem cells and other approaches of personalised medicine.

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